

<110> Avicore Biotechnology Institute Inc.

<120> Recombinant ScFv Antibodies Specific to Eimeria spp. Responsible for Coccidiosis

<130> Avicore-USA-1

<150> KR 2001-52934

<151> 2001-08-30

<160> 40

<170> KopatentIn 1.71

<210> 1

<211> 21

<212> DNA

<213> Artificial Sequence

<220>

<223> forward primer for PCR amplification of heavy chain variable region

<400> 1

ggaggagacg atgacttcgg t

21

<210> 2

<211> 21

<212> DNA

<213> Artificial Sequence

<220>

<223> reverse primer for PCR amplification of heavy chain variable region

<400> 2
gccgtgacgt tggacgagtc c

21

<210> 3
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<213> Artificial Sequence

<220>
<223> forward primer for PCR amplification of light chain variable region

<400> 3
taggacggtc agggttgtcc c

21

<210> 4
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<220>
<223> reverse primer for PCR amplification of light chain variable region

<400> 4
gcgcgtgactc agccgtcctc g

21

<210> 5
<211> 51

<212> DNA
<213> Artificial Sequence

<220>
<223> reverse primer for PCR amplification of heavy chain variable region

<400> 5
ggcggagggtg gctctggcg tggcgatcg gccgtgacgt tggacgagtc c

51

<210> 6
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> reverse primer for PCR amplification of heavy chain variable region

<400> 6
ggaggagacg atgacttcgg t

21

<210> 7
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> reverse primer for PCR amplification of light chain variable region

<400> 7
gcgctgactc agccgtcctc g

21

<210> 8
<211> 51
<212> DNA
<213> Artificial Sequence

<220>
<223> forward primer for PCR amplification of light chain variable region

<400> 8
agagccacct ccgcctgaac cgccctccacc taggacggtc agggttgtcc c

51

<210> 9
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> reverse primer for PCR amplification of heavy chain variable region

<400> 9
gccgtgacgt tggacgagtc c

21

<210> 10
<211> 51
<212> DNA
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<220>

<223> forward primer for PCR amplification of heavy chain variable region

<400> 10

agagccacct ccgcctgaac cgccctccacc ggaggagacg atgacttcgg t

51

<210> 11

<211> 51

<212> DNA

<213> Artificial Sequence

<220>

<223> reverse primer for PCR amplification of light chain variable region

<400> 11

ggcggaggtg gctctggcgg tggcggatcg gcgctgactc agccgtcctc g

51

<210> 12

<211> 21

<212> DNA

<213> Artificial Sequence

<220>

<223> forward primer for PCR amplification of light chain variable region

<400> 12

taggacggtc agggttgtcc c

21

<210> 13
<211> 55
<212> DNA
<213> Artificial Sequence

<220>
<223> reverse primer for PCR amplification of scFv

<400> 13
gtcctcgcaa ctgcggccca gccgggcat ggccgcgtg actcagccgt cctcg 55

<210> 14
<211> 39
<212> DNA
<213> Artificial Sequence

<220>
<223> forward primer for PCR amplification of scFv

<400> 14
ggccacctt gcggccgcgg aggagacgt gacttcggt 39

<210> 15
<211> 55
<212> DNA
<213> Artificial Sequence

<220>
<223> reverse primer for PCR amplification of scFv

<400> 15
gtcctcgcaa ctgcggccca gccgggcat ggccgcccgtg acgttggacg agtcc 55

<210> 16
<211> 39
<212> DNA
<213> Artificial Sequence

<220>
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<400> 16
ggccacccttt gcggccgcta ggacggtcag ggttgtccc 39

<210> 17
<211> 369
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<213> chicken hybridoma cell line 2-1

<220>
<221> CDS
<222> (1)..(369)

<400> 17
gcc gtg acg ttg gac gag tcc ggg ggc ggc ctc cag acg ccc gga gga 48
Ala Val Thr Leu Asp Glu Ser Gly Gly Leu Gln Thr Pro Gly Gly
1 5 10 15

gcg ctc agc ctc gtc aag gcc tcc ggg ttc acc ttc agc agc cat 96
Ala Leu Ser Leu Val Cys Lys Ala Ser Gly Phe Thr Phe Ser Ser His
20 25 30

ggc atg atg tgg gtg cga cag acg ccc ggc aag ggg ctg gag tgg gtc 144
Gly Met Met Trp Val Arg Gln Thr Pro Gly Lys Leu Glu Trp Val
35 40 45

gcg ggt att agc aac act ggt act tac acg tac tac gcg ccg gcg gtg 192
Ala Gly Ile Ser Asn Thr Gly Thr Tyr Thr Tyr Tyr Ala Pro Ala Val
50 55 60

aag ggc cgt gcc acc atc tcg agg gac aac ggg cag agc aca gtg agg 240
Lys Gly Arg Ala Thr Ile Ser Arg Asp Asn Gly Gln Ser Thr Val Arg
65 70 75 80

ctg cag ctg aac aac ctc agg gct gag gac acc ggc acc tac tac tgc 288
Leu Gln Leu Asn Asn Leu Arg Ala Glu Asp Thr Gly Thr Tyr Tyr Cys
85 90 95

gcc aaa ggt ggt gct tat tgt gct ggt tgt ggt ggt gac atc gac gca 336
Ala Lys Gly Gly Ala Tyr Cys Ala Gly Cys Gly Gly Asp Ile Asp Ala
100 105 110

tgg ggc cac ggg acc gaa gtc atc gtc tcc tcc 369
Trp Gly His Gly Thr Glu Val Ile Val Ser Ser
115 120

<210> 18
<211> 123
<212> PRT
<213> chicken hybridoma cell line 2-1

<400> 18
Ala Val Thr Leu Asp Glu Ser Gly Gly Leu Gln Thr Pro Gly Gly
1 5 10 15

Ala Leu Ser Leu Val Cys Lys Ala Ser Gly Phe Thr Phe Ser Ser His
20 25 30

Gly Met Met Trp Val Arg Gln Thr Pro Gly Lys Gly Leu Glu Trp Val
35 40 45

Ala Gly Ile Ser Asn Thr Gly Thr Tyr Thr Tyr Tyr Ala Pro Ala Val
50 55 60

Lys Gly Arg Ala Thr Ile Ser Arg Asp Asn Gly Gln Ser Thr Val Arg
65 70 75 80

Leu Gln Leu Asn Asn Leu Arg Ala Glu Asp Thr Gly Thr Tyr Tyr Cys
85 90 95

Ala Lys Gly Gly Ala Tyr Cys Ala Gly Cys Gly Gly Asp Ile Asp Ala
100 105 110

Trp Gly His Gly Thr Glu Val Ile Val Ser Ser
115 120

<210> 19

<211> 372

<212> DNA

<213> chicken hybridoma cell line 5011

<220>

<221> CDS

<222> (1)..(372)

<400> 19

gcc gtg acg ttg gac gag tcc ggg ggc ggc ctc cag acg ccc gca gga
Ala Val Thr Leu Asp Glu Ser Gly Gly Leu Gln Thr Pro Gly Gly
1 5 10 15

gcg ctc agc ctc gtc tgc aag gcc tcc ggg ttc gac ttc agc agt tac
Ala Leu Ser Leu Val Cys Lys Ala Ser Gly Phe Asp Phe Ser Ser Tyr
96

20	25	30	
gac atg att tgg gtg cga cag gcg ccc ggc aag ggg ctg gaa tac gtc			144
Asp Met Ile Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Tyr Val			
35	40	45	
gcg ggt att aga agt gat ggt agt agc ata tac tac ggg gcg gcg gtg			192
Ala Gly Ile Arg Ser Asp Gly Ser Ser Ile Tyr Tyr Gly Ala Ala Val			
50	55	60	
aag ggc cgt gcc acc atc tcg agg gac aac ggg cag agc act ctg agg			240
Lys Gly Arg Ala Thr Ile Ser Arg Asp Asn Gly Gln Ser Thr Leu Arg			
65	70	75	80
ctg cag ctg aac aac ctc agg gct gag gac acc ggc acc tat tac tgc			288
Leu Gln Leu Asn Asn Leu Arg Ala Glu Asp Thr Gly Thr Tyr Tyr Cys			
85	90	95	
gcc aaa agt tct tat ggt agt tgg aga ggt tct act ggt gac atc gac			336
Ala Lys Ser Ser Tyr Gly Ser Trp Arg Gly Ser Thr Gly Asp Ile Asp			
100	105	110	
gca tgg ggc cac ggg acc gaa gtc atc gtc tcc tcc			372
Ala Trp Gly His Gly Thr Glu Val Ile Val Ser Ser			
115	120		
<210> 20			
<211> 124			
<212> PRT			
<213> chicken hybridoma cell line 5D11			
<400> 20			
Ala Val Thr Leu Asp Glu Ser Gly Gly Gly Leu Gln Thr Pro Gly Gly			
1	5	10	15

Ala Leu Ser Leu Val Cys Lys Ala Ser Gly Phe Asp Phe Ser Ser Tyr
20 25 30

Asp Met Ile Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Tyr Val
35 40 45

Ala Gly Ile Arg Ser Asp Gly Ser Ser Ile Tyr Tyr Gly Ala Ala Val
50 55 60

Lys Gly Arg Ala Thr Ile Ser Arg Asp Asn Gly Gln Ser Thr Leu Arg
65 70 75 80

Leu Gln Leu Asn Asn Leu Arg Ala Glu Asp Thr Gly Thr Tyr Tyr Cys
85 90 95

Ala Lys Ser Ser Tyr Gly Ser Trp Arg Gly Ser Thr Gly Asp Ile Asp
100 105 110

Ala Trp Gly His Gly Thr Glu Val Ile Val Ser Ser
115 120

<210> 21

<211> 372

<212> DNA

<213> chicken hybridoma cell line 13C8

<220>

<221> CDS

<222> (1)..(372)

<400> 21

gcc gtg acg ttg gac gag tcc ggg ggc ggc ctc cag acg ccc gga gga
Ala Val Thr Leu Asp Glu Ser Gly Gly Gly Leu Gln Thr Pro Gly Gly

1 5 10 15

48

ggg ctc agc ctc gtc tgc aag ggc tcc ggg ctc gac ttc agc agt tat	96		
Gly Leu Ser Leu Val Cys Lys Gly Ser Gly Leu Asp Phe Ser Ser Tyr			
20	25	30	
gcc atg ggt tgg gtg cga cag gca ccc ggc aag ggg ctg gaa ttc gtc	144		
Ala Met Gly Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Phe Val			
35	40	45	
gcg ggt att aaa aaa aat gat ggt agt tgg aca aac tac gcg ccg gcg	192		
Ala Gly Ile Lys Lys Asn Asp Gly Ser Trp Thr Asn Tyr Ala Pro Ala			
50	55	60	
gtg cag ggc cgt gcc acc atc tcg agg gac aac ggg caa agc aca gtc	240		
Val Gln Gly Arg Ala Thr Ile Ser Arg Asp Asn Gln Ser Thr Val			
65	70	75	80
agg ctg cag ctg aac aac ctc agg gct gac gac acc ggc atc tac gtc	288		
Arg Leu Gln Leu Asn Asn Leu Arg Ala Asp Asp Thr Gly Ile Tyr Val			
85	90	95	
tgc acc aga gat gtt aat agt ggt tac cct gat gct gct gac atc gac	336		
Cys Thr Arg Asp Val Asn Ser Gly Tyr Pro Asp Ala Ala Asp Ile Asp			
100	105	110	
gca tgg ggc cac ggg acc gaa gtc atc gtc tcc tcc	372		
Ala Trp Gly His Gly Thr Glu Val Ile Val Ser Ser			
115	120		
<210> 22			
<211> 124			
<212> PRT			
<213> chicken hybridoma cell line 13C8			
<400> 22			
Ala Val Thr Leu Asp Glu Ser Gly Gly Leu Gln Thr Pro Gly Gly			

1 5 10 15

Gly Leu Ser Leu Val Cys Lys Gly Ser Gly Leu Asp Phe Ser Ser Tyr
20 25 30

Ala Met Gly Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Phe Val
35 40 45

Ala Gly Ile Lys Lys Asn Asp Gly Ser Trp Thr Asn Tyr Ala Pro Ala
50 55 60

Val Gln Gly Arg Ala Thr Ile Ser Arg Asp Asn Gly Gln Ser Thr Val
65 70 75 80

Arg Leu Gln Leu Asn Asn Leu Arg Ala Asp Asp Thr Gly Ile Tyr Val
85 90 95

Cys Thr Arg Asp Val Asn Ser Gly Tyr Pro Asp Ala Ala Asp Ile Asp
100 105 110

Ala Trp Gly His Gly Thr Glu Val Ile Val Ser Ser
115 120

<210> 23
<211> 375
<212> DNA
<213> chicken hybridoma cell line 8C3

<220>
<221> CDS
<222> (1)...(375)

<400> 23
gcc gtg acg ttg gag gag tcc ggg ggc ggc ctc cag acg ccc gga gga
Ala Val Thr Leu Asp Glu Ser Gly Gly Leu Gln Thr Pro Gly Gly

48

1	5	10	15	
ggg ctc agc ctc gtc tgc aag gcc tcc ggg ttc tct atc ggc ggt tac				96
Gly Leu Ser Leu Val Cys Lys Ala Ser Gly Phe Ser Ile Gly Gly Tyr				
20	25	30		
atc atg cac tgg gtg cgc cag acg cct gga aag ggg ctg gaa tac gtt				144
Ile Met His Trp Val Arg Gln Thr Pro Gly Lys Gly Leu Glu Tyr Val				
35	40	45		
gca ggt att gat gct ggt ggt agc aca tac tac ggg gcg gcg gtg				192
Ala Gly Ile Asp Ala Gly Gly Ser Thr Tyr Tyr Gly Ala Ala Val				
50	55	60		
cag ggc cgt gcc acc gtc tcg agg gac aac ggg cag agc aca ctg agg				240
Gln Gly Arg Ala Thr Val Ser Arg Asp Asn Gly Gln Ser Thr Leu Arg				
65	70	75	80	
ctg cag ctg aac aac ctc agg ctg gag gac acc ggc acc tac ttc tgc				288
Leu Gln Leu Asn Asn Leu Arg Leu Glu Asp Thr Gly Thr Tyr Phe Cys				
85	90	95		
gcc aaa gct tct cgg tgt ggc tat gat tgg tgt tct gct gat aac atc				336
Ala Lys Ala Ser Arg Cys Gly Tyr Asp Trp Cys Ser Ala Asp Asn Ile				
100	105	110		
gac gca tgg ggc cac ggg acc gaa gtc atc gtc tcc tcc				375
Asp Ala Trp Gly His Gly Thr Glu Val Ile Val Ser Ser				
115	120	125		

<210> 24

<211> 125

<212> PRT

<213> chicken hybridoma cell line 8C3

<400> 24

Ala Val Thr Leu Asp Glu Ser Gly Gly Gly Leu Gln Thr Pro Gly Gly

1 5 10 15

Gly Leu Ser Leu Val Cys Lys Ala Ser Gly Phe Ser Ile Gly Gly Tyr

20 25 30

Ile Met His Trp Val Arg Gln Thr Pro Gly Lys Gly Leu Glu Tyr Val

35 40 45

Ala Gly Ile Asp Ala Gly Gly Ser Thr Tyr Tyr Gly Ala Ala Val

50 55 60

Gln Gly Arg Ala Thr Val Ser Arg Asp Asn Gly Gln Ser Thr Leu Arg

65 70 75 80

Leu Gln Leu Asn Asn Leu Arg Leu Glu Asp Thr Gly Thr Tyr Phe Cys

85 90 95

Ala Lys Ala Ser Arg Cys Gly Tyr Asp Trp Cys Ser Ala Asp Asn Ile

100 105 110

Asp Ala Trp Gly His Gly Thr Glu Val Ile Val Ser Ser

115 120 125

<210> 25

<211> 324

<212> DNA

<213> chicken hybridoma cell line 2-1

<220>

<221> CDS

<222> (1)..(324)

<400> 25

gca	ctg	act	cag	ccg	tcc	tcg	gtg	tca	gca	aac	cca	gga	gaa	acc	gtc	48
Ala	Leu	Thr	Gln	Pro	Ser	Ser	Val	Ser	Ala	Asn	Pro	Gly	Glu	Thr	Val	
1	5	10	15													
aag	atc	acc	tgc	tcc	ggg	ggt	ggc	agc	tac	gct	gga	agt	tac	tat	tat	96
Lys	Ile	Thr	Cys	Ser	Gly	Gly	Gly	Ser	Tyr	Ala	Gly	Ser	Tyr	Tyr	Tyr	
20	25	30														
ggc	tgg	tac	cag	cag	aag	gca	cct	gcc	agt	gcc	cct	gtc	act	gtg	atc	144
Gly	Trp	Tyr	Gln	Gln	Lys	Ala	Pro	Ala	Ser	Ala	Pro	Val	Thr	Val	Ile	
35	40	45														
tat	gac	aac	acc	aac	aga	ccc	tcg	aac	atc	cct	tca	cga	ttc	tcc	ggt	192
Tyr	Asp	Asn	Thr	Asn	Arg	Pro	Ser	Asn	Ile	Pro	Ser	Arg	Phe	Ser	Gly	
50	55	60														
tcc	cta	tcc	ggc	tcc	aca	aac	aca	tta	acc	atc	act	ggg	gtc	caa	gtc	240
Ser	Leu	Ser	Gly	Ser	Thr	Asn	Thr	Leu	Thr	Ile	Thr	Gly	Val	Gln	Val	
65	70	75	80													
gag	gac	gag	gct	tat	tac	tgt	ggg	agg	ttc	gac	agg	agt	tat	gtt	288	
Glu	Asp	Glu	Ala	Val	Tyr	Tyr	Cys	Gly	Ser	Phe	Asp	Ser	Ser	Tyr	Val	
85	90	95														
ggt	ata	ctt	ggg	gcc	ggg	aca	acc	ctg	acc	gtc	cta					324
Gly	Ile	Leu	Gly	Ala	Gly	Thr	Thr	Leu	Thr	Val	Leu					
100	105															
<210> 26																
<211> 108																
<212> PRT																
<213> chicken hybridoma cell line 2-1																
<400> 26																
Ala Leu Thr Gln Pro Ser Ser Val Ser Ala Asn Pro Gly Glu Thr Val																

1 5 10 15

Lys Ile Thr Cys Ser Gly Gly Ser Tyr Ala Gly Ser Tyr Tyr Tyr
 20 25 30

Gly Trp Tyr Gln Gln Lys Ala Pro Ala Ser Ala Pro Val Thr Val Ile
 35 40 45

Tyr Asp Asn Thr Asn Arg Pro Ser Asn Ile Pro Ser Arg Phe Ser Gly
 50 55 60

Ser Leu Ser Gly Ser Thr Asn Thr Leu Thr Ile Thr Gly Val Gln Val
 65 70 75 80

Glu Asp Glu Ala Val Tyr Tyr Cys Gly Ser Phe Asp Ser Ser Tyr Val
 85 90 95

Gly Ile Leu Gly Ala Gly Thr Thr Leu Thr Val Leu
 100 105

<210> 27
 <211> 312
 <212> DNA
 <213> chicken hybridoma cell line 5D11

<220>
 <221> CDS
 <222> (1)..(312)

<400> 27
 gcg ctg act cag ccg tcc tcg gtg tca gca aac ctg gga gaa acc gtc 48
 Ala Leu Thr Gln Pro Ser Ser Val Ser Ala Asn Leu Gly Glu Thr Val
 1 5 10 15

gaa atc acc tgc tcc ggg ggc agg tat agg tat ggc tgg tat cag cag 96

Glu	Ile	Thr	Cys	Ser	Gly	Gly	Arg	Tyr	Arg	Tyr	Gly	Trp	Tyr	Gln	Gln	
20																
aag	tca	tct	ggc	agt	gcc	cct	gtc	act	gtg	atc	tat	gac	aac	gac	aag	144
Lys	Ser	Ser	Gly	Ser	Ala	Pro	Val	Thr	Val	Ile	Tyr	Asp	Asn	Asp	Lys	
35																
aga	ccc	tcg	gac	atc	cct	tca	cga	ttc	tcc	ggt	tcc	aaa	tcc	gac	tcc	192
Arg	Pro	Ser	Asp	Ile	Pro	Ser	Arg	Phe	Ser	Gly	Ser	Lys	Ser	Asp	Ser	
50																
acg	ggc	aca	tta	acc	atc	act	ggg	gtc	caa	gcc	gag	gac	gag	gct	gtc	240
Thr	Gly	Thr	Leu	Thr	Ile	Thr	Gly	Val	Gln	Ala	Glu	Asp	Glu	Ala	Val	
65																
tat	tac	tgt	ggg	aat	gca	gac	aac	aat	act	tac	gat	cct	ata	ttt	ggg	288
Tyr	Tyr	Cys	Gly	Asn	Ala	Asp	Asn	Asn	Thr	Tyr	Asp	Pro	Ile	Phe	Gly	
85																
gcc	ggg	aca	acc	ctg	acc	gtc	cta									312
Ala	Gly	Thr	Thr	Leu	Thr	Val	Leu									
100																
<210> 28																
<211> 104																
<212> PRT																
<213> chicken hybridoma cell line 5D11																
<400> 28																
Ala Leu Thr Gln Pro Ser Ser Val Ser Ala Asn Leu Gly Glu Thr Val																
1		5		10		15										
Glu	Ile	Thr	Cys	Ser	Gly	Gly	Arg	Tyr	Arg	Tyr	Gly	Trp	Tyr	Gln	Gln	
20																

Lys Ser Ser Gly Ser Ala Pro Val Thr Val Ile Tyr Asp Asn Asp Lys
35 40 45

Arg Pro Ser Asp Ile Pro Ser Arg Phe Ser Gly Ser Lys Ser Asp Ser
50 55 60

Thr Gly Thr Leu Thr Ile Thr Gly Val Gln Ala Glu Asp Glu Ala Val
65 70 75 80

Tyr Tyr Cys Gly Asn Ala Asp Asn Asn Thr Tyr Asp Pro Ile Phe Gly
85 90 95

Ala Gly Thr Thr Leu Thr Val Leu
100

<210> 29
<211> 324
<212> DNA
<213> chicken hybridoma cell line 13C8

<220>
<221> CDS
<222> (1)..(324)

<400> 29
gcg ctg act cag ccg tcc tcg gtg tca gca aac ctg gga gga acc gtc 48
Ala Leu Thr Gln Pro Ser Ser Val Ser Ala Asn Leu Gly Gly Thr Val
1 5 10 15

aag atc acc tgc tcc ggg ggc agc tat ggc tat ggc tgg ttc cag cag 96
Lys Ile Thr Cys Ser Gly Gly Ser Tyr Gly Tyr Gly Trp Phe Gln Gln
20 25 30

aag tca cct ggc agt gcc cct gtc cct gtg atc tac tgg aac aac aag 144
Lys Ser Pro Gly Ser Ala Pro Val Pro Val Ile Tyr Trp Asn Asn Lys

35

40

45

aga ccc tcg gac atc cct tca cga ttc tcc ggt tcc aaa tcc ggc tcc 192
Arg Pro Ser Asp Ile Pro Ser Arg Phe Ser Gly Ser Lys Ser Gly Ser

50

55

60

aca gcc aca tta acc atc act ggg gtc cga gcc gag gac gag gct gtc 240
Thr Ala Thr Leu Thr Ile Thr Gly Val Arg Ala Glu Asp Glu Ala Val
65 70 75 80

tat tac tgt ggg aat gca gac agc aat act gct gat agt gat tat gtt 288
Tyr Tyr Cys Gly Asn Ala Asp Ser Asn Thr Ala Asp Ser Asp Tyr Val
85 90 95

ggt ata ttt ggg gcc ggg aca acc ctg acc gtc cta 324
Gly Ile Phe Gly Ala Gly Thr Thr Leu Thr Val Leu
100 105

<210> 30

<211> 108

<212> PRT

<213> chicken hybridoma cell line 13C8

<400> 30

Ala Leu Thr Gln Pro Ser Ser Val Ser Ala Asn Leu Gly Gly Thr Val

1

5

10

15

Lys Ile Thr Cys Ser Gly Gly Ser Tyr Gly Tyr Gly Trp Phe Gln Gln
20 25 30

Lys Ser Pro Gly Ser Ala Pro Val Pro Val Ile Tyr Trp Asn Asn Lys
35 40 45

Arg Pro Ser Asp Ile Pro Ser Arg Phe Ser Gly Ser Lys Ser Gly Ser
50 55 60

Thr Ala Thr Leu Thr Ile Thr Gly Val Arg Ala Glu Asp Glu Ala Val
65 70 75 80

Tyr Tyr Cys Gly Asn Ala Asp Ser Asn Thr Ala Asp Ser Asp Tyr Val
85 90 95

Gly Ile Phe Gly Ala Gly Thr Thr Leu Thr Val Leu
100 105

<210> 31

<211> 315

<212> DNA

<213> chicken hybridoma cell line 8C3

<220>

<221> CDS

<222> (1)..(315)

<400> 31

gcg ctg act caa ccg tcc tcg gtg tca gcg atc ccg gga gaa acc gtc 48
Ala Leu Thr Gln Pro Ser Ser Val Ser Ala Ile Pro Gly Glu Thr Val
1 5 10 15

gag atc acc tgc tcc ggg ggt aac aac tac tat ggc tgg tat cag cag 96
Glu Ile Thr Cys Ser Gly Gly Asn Asn Tyr Tyr Gly Trp Tyr Gln Gln
20 25 30

aaa tca cct ggc agt gcc cct gtc act gtg atc tac tac aac aac aag 144
Lys Ser Pro Gly Ser Ala Pro Val Thr Val Ile Tyr Tyr Asn Asn Lys
35 40 45

aga ccc tcg gac atc cct tca cga ttc tcc ggt tcc aaa ccc ggc tcc 192
Arg Pro Ser Asp Ile Pro Ser Arg Phe Ser Gly Ser Lys Pro Gly Ser
50 55 60

aca aac aca tta acc atc act ggg gtc cga gcc gag gac gag gct gtc 240
Thr Asn Thr Leu Thr Ile Thr Gly Val Arg Ala Glu Asp Glu Ala Val
65 70 75 80

tat ttc tgt ggt gcc tgg gaa agt agt cct att tat gtt ggt ata ttt 288
Tyr Phe Cys Gly Ala Trp Glu Ser Ser Pro Ile Tyr Val Gly Ile Phe
85 90 95

ggg gcc ggg aca acc ctg acc gtc cta 315
Gly Ala Gly Thr Thr Leu Thr Val Leu
100 105

<210> 32
<211> 105
<212> PRT
<213> chicken hybridoma cell line 8C3

<400> 32
Ala Leu Thr Gln Pro Ser Ser Val Ser Ala Ile Pro Gly Glu Thr Val
1 5 10 15

Glu Ile Thr Cys Ser Gly Gly Asn Asn Tyr Tyr Gly Trp Tyr Gln Gln
20 25 30

Lys Ser Pro Gly Ser Ala Pro Val Thr Val Ile Tyr Tyr Asn Asn Lys
35 40 45

Arg Pro Ser Asp Ile Pro Ser Arg Phe Ser Gly Ser Lys Pro Gly Ser
50 55 60

Thr Asn Thr Leu Thr Ile Thr Gly Val Arg Ala Glu Asp Glu Ala Val
65 70 75 80

Tyr Phe Cys Gly Ala Trp Glu Ser Ser Pro Ile Tyr Val Gly Ile Phe

85

90

95

Gly Ala Gly Thr Thr Leu Thr Val Leu

100

105

<210> 33

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> reverse primer for PCR amplification of heavy chain variable region

<400> 33

Ala Val Thr Leu Asp Glu Ser

1

5

<210> 34

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> forward primer for PCR amplification of heavy chain variable region

<400> 34

Ser Ser Val Ile Val Glu Thr

1

5

<210> 35
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<223> reverse primer for PCR amplification of light chain variable region

<400> 35
Ala Leu Thr Gln Pro Ser Ser
1 5

<210> 36
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<223> forward primer for PCR amplification of light chain variable region

<400> 36
Leu Val Thr Leu Thr Thr Gly
1 5

<210> 37
<211> 381
<212> DNA
<213> chicken hybridoma cell line 60-12-G10

<220>

<221> CDS

<222> (1)..(381)

<400> 37

gcc gtg acg ttg gac gag tcc ggg ggc ggc ctc cag acg ccc gga aga
Ala Val Thr Leu Asp Glu Ser Gly Gly Gly Leu Gln Thr Pro Gly Arg
1 5 10 15

48

gcg ctc agc ctc gtc tgc aag gcc tcc ggg ttc acc ttc agc agt tat
Ala Leu Ser Leu Val Cys Lys Ala Ser Gly Phe Thr Phe Ser Ser Tyr
20 25 30

96

ggc atg gtc tgg gtc cga cag gcg ccc ggc aag ggg ctg gaa tac gtc
Gly Met Val Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Tyr Val
35 40 45

144

gct gaa att atc aca act ggt aga gac aca tgg tat ggg acg gcg gtc
Ala Glu Ile Ile Thr Thr Gly Arg Asp Thr Trp Tyr Thr Ala Val
50 55 60

192

aag ggc cgt gcc acc atc tcg agg gac aac ggg cag agt aca gtc agg
Lys Gly Arg Ala Thr Ile Ser Arg Asp Asn Gly Gln Ser Thr Val Arg
65 70 75 80

240

ctg cag ctg aac aac ctc agg gct gaa gac acc ggc atc tac tac tgc
Leu Gln Leu Asn Asn Leu Arg Ala Glu Asp Thr Gly Ile Tyr Tyr Cys
85 90 95

288

gcc aaa tgc agt tat gag tgt act agt agt tgt tgg ggt tat act gat
Ala Lys Cys Ser Tyr Glu Cys Thr Ser Ser Cys Trp Gly Tyr Thr Asp
100 105 110

336

atg atc gac gca tgg ggc cac ggg acc gaa gtc atc gtc tcc tcc
Met Ile Asp Ala Trp Gly His Gly Thr Glu Val Ile Val Ser Ser
115 120 125

381

<210> 38

<211> 127

<212> PRT

<213> chicken hybridoma cell line 60-12-G10

<400> 38

Ala Val Thr Leu Asp Glu Ser Gly Gly Gly Leu Gln Thr Pro Gly Arg

1 5 10 15

Ala Leu Ser Leu Val Cys Lys Ala Ser Gly Phe Thr Phe Ser Ser Tyr

20 25 30

Gly Met Val Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Tyr Val

35 40 45

Ala Glu Ile Ile Thr Thr Gly Arg Asp Thr Trp Tyr Gly Thr Ala Val

50 55 60

Lys Gly Arg Ala Thr Ile Ser Arg Asp Asn Gly Gln Ser Thr Val Arg

65 70 75 80

Leu Gln Leu Asn Asn Leu Arg Ala Glu Asp Thr Gly Ile Tyr Tyr Cys

85 90 95

Ala Lys Cys Ser Tyr Glu Cys Thr Ser Ser Cys Trp Gly Tyr Thr Asp

100 105 110

Met Ile Asp Ala Trp Gly His Gly Thr Glu Val Ile Val Ser Ser

115 120 125

<210> 39

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<212> DNA

<213> chicken hybridoma cell line 6D-12-G10

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<222> (1)..(312)

<400> 39

gcg ctg act cag ccg tcc tcg gtg tca gca aac ctg gga gga acc gtc
Ala Leu Thr Gln Pro Ser Ser Val Ser Ala Asn Leu Gly Gly Thr Val
1 5 10 15

48

aag atc acc tgc tcc ggg agt agt ggc agc tat ggc tgg tat cag cag
Lys Ile Thr Cys Ser Gly Ser Ser Gly Tyr Gly Trp Tyr Gln Gln
20 25 30

96

aag tca cct ggc agt gcc cct gtc act gtg atc tat tac aac gac aag
Lys Ser Pro Gly Ser Ala Pro Val Thr Val Ile Tyr Tyr Asn Asp Lys
35 40 45

144

aga ccc tcg gac atc cct tca cga ttc tcc ggt tcc aaa tcc ggc tcc
Arg Pro Ser Asp Ile Pro Ser Arg Phe Ser Gly Ser Lys Ser Gly Ser
50 55 60

192

acg ggc aca tta acc atc act ggg gtc caa gcc gag gac gag gct gtc
Thr Gly Thr Leu Thr Ile Thr Gly Val Gln Ala Glu Asp Glu Ala Val
65 70 75 80

240

tat ttc tgt gag agt aca gac tac agt agt act gat ata ttt ggg gcc
Tyr Phe Cys Glu Ser Thr Asp Tyr Ser Ser Thr Asp Ile Phe Gly Ala
85 90 95

288

ggg aca acc ctg acc gtc cta ggt
Gly Thr Thr Leu Thr Val Leu Gly
100

312

<210> 40

<211> 104

<212> PRT

<213> chicken hybridoma cell line 60-12-G10

<400> 40

Ala Leu Thr Gln Pro Ser Ser Val Ser Ala Asn Leu Gly Gly Thr Val

1

5

10

15

Lys Ile Thr Cys Ser Gly Ser Ser Gly Ser Tyr Gly Trp Tyr Gln Gln

20

25

30

Lys Ser Pro Gly Ser Ala Pro Val Thr Val Ile Tyr Tyr Asn Asp Lys

35

40

45

Arg Pro Ser Asp Ile Pro Ser Arg Phe Ser Gly Ser Lys Ser Gly Ser

50

55

60

Thr Gly Thr Leu Thr Ile Thr Gly Val Gln Ala Glu Asp Glu Ala Val

65

70

75

80

Tyr Phe Cys Glu Ser Thr Asp Tyr Ser Ser Thr Asp Ile Phe Gly Ala

85

90

95

Gly Thr Thr Leu Thr Val Leu Gly

100